REMARKS

Claims 1-50 are pending in the instant application. Claims 1-24 and 42-50 have been withdrawn from consideration pursuant to a restriction requirement. Claims 25-41 stand rejected. Reconsideration of the instant application is respectfully requested in light of this paper and the attached Third 37 C.F.R. §1.132 Declaration of Dr. Robert Knoll. This paper has inserted no new matter.

I. REJECTION UNDER 35 U.S.C. §112

Claim 29 stands rejected under 35 U.S.C. §112, second paragraph. Applicants respectfully traverse this rejection for the following reasons.

Claim 29 recites a preform for blowing a container in which the preform sidewall thickness varies from 0.074-0.120 inch and the container sidewall thickness ranging from 0.025-0.032 inch. Claim 25, from which claim 29 depends, requires that the container sidewall be "at least approximately 2.3 times the thickness of the container sidewall." The rejection asserts that when viewed in light of this 2.3 multiple, the ranges of sidewall thicknesses of the container and preform recited in claim 29 barely overlap. The rejection implies that the ranges are indefinite or improper because they barely overlap when using the 2.3 multiple. However, claim 25 calls for a multiple of "at least approximately 2.3 times," not exactly 2.3 times. When selecting a multiple greater than 2.3, more overlap will become apparent. For example, when viewed with a multiplier of 3.0, which is permitted by the "at least approximately 2.3 times" element of claim 25, the 0.025-0.032 inch thickness range of the container sidewall recited in claim 29 requires a preform sidewall thickness of 0.075-0.096, which falls squarely within the range of 0.074-0.120 recited in claim 29.

Since the purpose of claim 29, as a dependant claim, is to further limit claim 25 from which it depends, claim 29 need not provide thicknesses covering every multiple defined in claim 25 (i.e. 2.3 and greater). It is improper to view the thickness ranges of claim 29 in conjunction with only a 2.3 multiplier. Rather, since a 3.0 multiplier (and other multipliers) would harmonize the thickness ranges recited in claim 29, and the 3.0 multiplier falls within the limitations of claim 25, claim 29 is further limiting of claim 25 in compliance with 35 U.S.C. §112.

Applicants respectfully request the withdrawal of this rejection.

II. ART REJECTIONS

Claims 25-41 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,131,666 to Agrawal et al. (Agrawal). Claims 25-41 also stand rejected under 35 U.S.C. §103(a) as unpatentable over Agrawal in view of Applicants' "admissions in their specification at page 2, first full paragraph." For the reasons set forth below, Applicants respectfully traverse these rejections and submit the enclosed Third 37 C.F.R. §1.132 Declaration of Dr. Robert Knoll in support of their traversal.

A. Anticipation

Applicants respectfully assert that Agrawal fails to anticipate claims 25-41.

As a general matter, while this rejection relies on specific of examples disclosed by Agrawal, none of those examples employed polypropylene. Since polypropylene is an element of each of claims 25-41, Agrawal cannot anticipate those claims. Even assuming *arguendo* that Agrawal disclosed all of the elements of claims 25-41 other than the recited polypropylene, which it does not, the specific examples of Agrawal cited in support of the outstanding rejections expressly

reference materials (typically "nitrile polymers") other than the polypropylene of claims 25-41 and make no reference to the use of polypropylene.

What Agrawal does teach is that "propylene" monomers may be useful comonomers for copolymerization with the nitrile compositions that are the focus of Agrawal's invention. (Column 7, lines 5-65). Specifically, Agrawal states "nitrile compositions generally will contain one or more comonomers copolymerizable with the nitrile monomers including ...." (Column 7, lines 5-7). Agrawal later continues by stating "[a]dditional useful comonomers include...propylene...." (Column 7, lines 24-26). The use of propylene monomers for copolymerization with Agrawal's nitrile monomers does not constitute a teaching of using **polypropylene**. Applicants respectfully assert that the anticipation rejection cannot stand and request that the same be withdrawn.

Claims 25-32

While the rejection does not individually address the independent claims, Applicants reasonably believe, from a comparison of claim 25 to the recited rejection, that the rejection of claim 25 relies on the preform and container of Example 1. The rejection states that Example 1 discloses:

(1) a preform thickness of 0.399 cm – or, according to the rejection, 153.54 mils;

(2) resulting bottles with a minimal thickness of 38 mils;

(3) giving a preform to container thickness ratio of 4.04.

This is incorrect for two reasons. First, the thickness ratio recited in claim 25 is the ratio of the preform *sidewall* thickness to the container *sidewall* thickness, whereas the thicknesses relied on in Example 1 are not sidewall thicknesses. The preform thickness of 0.399 cm is an average thickness of the preform – not a sidewall thickness. Agrawal states at column 8, line 32:

Average thickness = 0.399 cms.

Second, the bottle thickness range of 38 mils to 70 mils which the rejection relied upon for the 38 mil thickness, is a thickness range for the chime area of the resulting bottle – not the sidewall. Agrawal states at column 9, lines 26-33:

> Bottles thus formed were presented to a thickness measuring instrument.... This instrument was preset to reject bottles having a thickness in **chime area 45** in FIG. 4 either below or above or which varied circumferentially beyond certain limits. These settings were 38 mils for minimum thickness and 70 mils for maximum thickness.

(*Emphasis added*) The "chime area," depicted at reference numeral 45 in Fig. 4 of Agrawal is not part of the bottle sidewall. It is part of the bottle base.

Moreover, Example 1 is expressly concerned with producing a preform that will perform as desired when comprised of polymerized acrylonitrile/styrene monomer, not polypropylene. Agrawal states at Column 8, lines 23-28:

> Thermoplastic material in the form of a polymer comprising a 70/30 percent mixture by weight of **polymerized acrylonitrile/styrene monomer** was injection molded in conventional equipment into preforms configured as in FIG. 2 having the following dimensional characteristics....

(*Emphasis added*) Thus, even if the thicknesses relied upon by the rejection were the appropriate thicknesses for the ratio defined in claim 25 (which they are not), there is no mention in Example 1 of using polypropylene with a preform having the characteristics defined in Example 1 to construct the container of Example 1.

For all of these reasons, Applicants respectfully assert that Agrawal does not anticipate claims 25-32 and request that the rejection be withdrawn.

Claims 33-37

After significant consideration, Applicants are unable to identify what portions of Agrawal's disclosure is relied upon for the anticipation rejection of claims 33-37. Applicants cannot therefore

comment on the anticipation rejection set forth in the Office Action as it relates to those claims. Applicants respectfully assert that no *prima facie* showing has been made to support an anticipation rejection of claims 33-37.

Claims 38-41

While claim 38 is not individually addressed in the rejection, Applicants reasonably believe, from comparison of claim 38 to the rejection, that the rejection of claim 38 relies on stretch characteristics designed for and limited by Agrawal to a preform comprising a major portion of a polymerized nitrile group containing monomer, but not polypropylene. The rejection points first to Agrawal's methods for calculating axial and radial stretch (as disclosed in column 5) to impart to a preform during blow molding and, second, to a sentence defining a range for each (see column 5, lines 61-64). The ranges are defined as follows:

> The stretch parameters as above defined should provide A plus B values of between about 130 to 280 but with a proviso that A be at least about 30 and B be at least about 100.

"A" is defined as percent of axial stretch and "B" is defined as percent of radial stretch. It is these stretch parameters on which the rejection of claim 38 relies. However, Applicants respectfully assert that this rejection cannot stand because these stretch parameters are specifically designed for, and thus limited to, preforms comprised of polymers comprising a major proportion of nitrile group containing monomer, but not polypropylene. The sentences immediately preceding and following the above quote, on which the rejection relies, expressly say so. The preceding sentence states:

> As exemplified in FIGS. 1 and 5, when the above considerations are applied to **nitrile-based materials**, i.e. **polymers comprising a major proportion of nitrile-group-containing monomer**, the ratio of preform average thickness to preform body inside surface area should be between 0.005 to 0.011 $inch^{-1}$ which should be controlled on heating to provide between about 4 to 15% and preferably 6 to 15% shrinkage.

(*Emphasis added*) This lead-in sentence sets the boundaries to which the stretch parameters relied on by the rejection may be applied. Agrawal designed the stretch parameters specifically for, and applied them to, preforms of "polymers comprising a major proportion of nitrile-group-containing monomer." The sentence following the relied upon recitation of stretch parameters confirms this. That sentence states:

> At these stretch levels for **such nitrile-based materials**, substantial imbalance in the resulting levels of orientation in one direction versus the other is avoided.

(*Emphasis added*) This sentence makes very clear that the stretch parameters relied-upon for the outstanding anticipation rejection of claim 38 apply specifically to preforms of nitrile-based materials - polymers comprising a major proportion of nitrile-group-containing monomer.

Nowhere does Agrawal ever link, directly or through suggestion, polypropylene to the stretch parameters relied upon for the rejection of claim 38. Indeed, Agrawal never once uses the term "polypropylene." Thus, Applicants respectfully assert that an anticipation rejection of claims 38-41 is improper.

To anticipate the pending claims, Agrawal must teach each and every element of those claims sufficiently to have placed a person of ordinary skill in the art in possession of the claimed invention. *In re Spada*, 15 USPQ2d 1655 (Fed. Cir. 1990). For the reasons stated above, Agrawal did not teach each and every element of the claims. Agrawal cannot therefore anticipate the pending claims. *Id.*

B. Obviousness

Applicants respectfully assert that Agrawal fails to render obvious claims 25-41.

The outstanding rejection based on 35 U.S.C. §103 relies on Applicants' statement in the specification of this application that polypropylene is cheaper and has better processability and

physical properties than polyethylene terephthalate as motivation for using polypropylene to make the preforms and containers disclosed in Agrawal in order to lower costs and improve processability and physical properties. The rejection further states that the wall thickness ratio and radial stretch discussed in the anticipation rejection apply to this asserted obvious polypropylene preforms and containers. Applicants traverse this rejection.

1. Elements Preventing Anticipation Also Prevent Obviousness

First, Applicants have shown above that a *prima facie* case of anticipation has not been made against claims 25-41 because elements of those claims in addition to the polypropylene element have not been shown in Agrawal. Obviousness is used by the rejection to import only polypropylene to the preforms and containers of Agrawal -- no other element of Applicants' claims are imported through obviousness. This obviousness rejection cannot, therefore, cure the defects of the anticipation rejections. The elements missing from the anticipation rejections of claims 25-41 are likewise missing from this obviousness rejection. Therefore, this obviousness rejection cannot stand as against claims 25-41 for the same reasons set forth above in contravention of the anticipation rejections.

2. No Teaching or Motivation To Combine

Second, Agrawal provides no suggestion to "employ the polypropylene of the specification as the polymers for making the preforms and containers of Agrawal." Indeed, the only motivation cited in support of this rejection is the Applicants' statement in the specification that polypropylene is cheaper and easier to process than PET. The specification makes no comparison to the nitrile-based materials which are the focus of Agrawal. "[T]he mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious

'absent some teaching, suggestion or incentive supporting the combination.'" *Ex Parte Metcalf*, 67 USPQ2d 1633, 1635 (Bd. Pat. App. & Int., 2003)(*citing Carella v. Starlight Archery and Pro Line Co.*, 231 USPQ 644, 647 (Fed. Cir. 1986)). Agrawal provides no teaching whatsoever of polypropylene or any suggestion of substituting polypropylene for the nitrile material of Agrawal. (See, Decl. of Knoll ¶7).

3. No Teaching or Motivation To Combine As Asserted

Third, the outstanding obviousness rejection improperly combines polypropylene with Agrawal embodiments designed for nitrile-based materials. The preform of Agrawal was specifically designed to resolve problems associated with nitrile-based materials. The features of that preform and container (e.g. such as wall thicknesses and stretch ratios) are material-specific. Agrawal fails to teach or render obvious to one of ordinary skill in the art that the nitrile-based preform taught by Agrawal may be constructed from polypropylene to blow a polypropylene container without modifying the specified configuration of the nitrile-based preforms and containers relied on by the rejection. Simple motivation to lower costs and improve processability cannot overcome the fact that one of ordinary skill in the art would not have considered it obvious to replace the nitrile-based materials with polypropylene without modifying the material-specific features to accommodate the differences between Agrawal's nitrile-based materials and polypropylene. Accordingly, Agrawal neither enables nor renders obvious the invention of claims 25-41 of the instant application.

Agrawal's invention is the use of particular re-heating and stretching parameters for a preform comprised of a nitrile-based polymer in order to control preform shrinkage during re-heating so as to reduce thickness variability in the container blow molded from the preform.

> In forming containers from injection molded preforms of thermoplastic material such as **nitrile-based polymers** by a process which includes heating the preforms to orientation temperature followed by distension to container form in a mold, the improvement providing **reduced thickness variability** in lower portions of the containers which involves controlling preform shrinkage during such heating to between about 4 to 15% of the initial length for **nitrile materials** by maintaining the ratio of average thickness to inside preform surface area within defined limits and then axially and radially stretching such preforms during distension to predetermined levels. **Nitrile preforms** convertible to such improved quality containers have values of between about 0.005 to 0.011 inch.$^{-1}$ for the aforementioned ratio.

(Abstract) (*Emphasis added*) Agrawal discloses that the very problem sought to be resolved by its invention results from the nitrile-based polymer employed by Agrawal. No other materials are mentioned as causing the problem Agrawal resolves. As such, the problems of Agrawal and the solutions offered by its invention, are disclosed as specific to the nitrile-based polymer. To one of ordinary skill in the art, Agrawal's Background Of The Invention leaves nothing to doubt on this topic by stating at column 1, line 64 through column 2, line 15:

> in pumping relatively stiff **high nitrile thermoplastic material** into an injection mold, frozen strains will inherently develop on cooling. Such strains relieve during reheat resulting in shrinkage along the preform length which has to be dealt with since no way has yet been found to entirely avoid developing such strains in an elongated preform. More specifically, a system employing temperature programming during reheat typically results in a region of the preform exposed to a heat source at one temperature gradually approaching the desired level for such region and then, because of strain relaxation, retracting to a position where the same plastic which had been exposed to the first source is now before a source set at a different temperature. When preforms subject to such overlapping exposure are expanded in the mold substantial thickness variability results which in turn can lead to excessively thin or thick areas and the apparent need for more material in the container than is really necessary for the intended end use.

(*Emphasis added*) Here, Agrawal describes the root of the problem sought to be resolved by its invention. The thickness variations are a result of relaxing frozen strains in the preform where the strain is caused by the injection molding of high nitrile thermoplastic materials. This is confirmed by the Summary Of The Invention which states, in part, at column 1, line 64 through column 2, line 15, that:

> In more specific terms, there is provided in the method of forming containers from injection molded preforms comprising a major proportion of a **polymerized nitrile-group-containing monomer**, which method includes heating the preforms to molecular orientation temperature followed by axial and radial stretching to container form in a mold, the improvement therein providing reduced thickness variability in lower portions of the containers which comprises, in combination, the steps of controlling shrinkage of the preforms during such heating to between about 4 to 15% of the total initial preform length and then controlling the extent of such stretching according to the relation:

(*Emphasis added*) Although other objects of the invention are also stated in the Summary Of The Invention without specific reference to nitrile-based materials, the discussion of nitrile-based preforms in the Background has set the stage and directed one of ordinary skill in the art to focus on the problems of preforms constructed of nitrile-based materials. (See, Decl. of Knoll ¶8). Indeed, this is confirmed by the summary nature of the above quoted portion of the Summary Of The Invention and its statement that it is providing "more specific terms" about the invention. This quote does not state that it discusses only one embodiment of the invention or that there exist other methods of performing the invention. Rather, it sums up the discussion of the invention by coming full circle to the problem sought to be resolved -- thickness variations due to strain relief while making containers from preforms of nitrile-based materials. Accordingly, one of ordinary skill in the art would understand that Agrawal is specifically directed to resolving problems of reheat stretch blow molding preforms of nitrile-based materials. (See, Decl. of Knoll ¶9).

After completing the explanation of the thicknesses and stretch parameters applicable to preforms of nitrile-based polymers, Agrawal states, without further instruction, that the preforms of the invention may be formed "from any molecularly orientable thermoplastic material." (column 6, lines 45-47) Agrawal quickly returns, however, to discussing its real invention – preforms of nitrile-based materials.

> The invention has been found particularly applicable to **nitrile polymers** containing a major proportion of a **polymerized nitrile-group-containing monomer**, such materials generally comprising from about 50 to about 90% by weight of nitrile monomer units, based on the total polymer weight, wherein the weight percent of nitrile is calculated as acrylonitrile.

(column 6, lines 52-58)(*Emphasis added*)

It makes sense to one of ordinary skill in the art that Agrawal focuses on nitrile-based materials because polypropylene does not suffer from the frozen strains that Agrawal describes as causing shrinkage problems in nitrile-based materials. (See, Decl. of Knoll ¶10). One of ordinary skill in the art understands that polypropylene typically has a glass transition temperature of about -3.2°C such that any strain induced by injection molding would be annealed at room temperature. (See, Decl. of Knoll ¶10). Since any injection molding induced strain would become annealed by the time the preform reaches a reheating process for blow molding, Agrawal is totally irrelevant to polypropylene preforms. (See, Decl. of Knoll ¶10). Thus, one of ordinary skill in the art interested in making polypropylene preforms would not seek out the solution offered by Agrawal. (See, Decl. of Knoll ¶10). Moreover, one of ordinary skill in the art reading Agrawal would not consider its teachings relevant to polypropylene preforms. (See, Decl. of Knoll ¶10). Accordingly, one of ordinary skill in the art would not have found it obvious to construct the preform of Agrawal from polypropylene. (See, Decl. of Knoll ¶10). To do so would go directly against Agrawal's disclosure

and would venture outside of the scope of Agrawal's invention -- providing nitrile preforms with uniform wall thickness by relieving injection molding induced strain. (See, Decl. of Knoll ¶10).

Moreover, even if Agrawal expressly or impliedly stated (which it does not) that polypropylene could replace Agrawal's nitrile-based material, Agrawal fails to provide any teaching of the modifications to Agrawal's preforms, containers and/or stretch ratios necessary to compensate for the differences in processing and behavior characteristics between nitrile-based materials and polypropylene. (See, Decl. of Knoll ¶11). To be sure, Agrawal does not state that no alterations are necessary to its nitrile-based preforms, containers and/or stretch ratios to compensate for those differences in processing and behavior characteristics. (See, Decl. of Knoll ¶11). One of ordinary skill in the art is left without instruction on how to construct Agrawal's preform and container from polypropylene. (See, Decl. of Knoll ¶11).

One of ordinary skill in the art would not have understood Agrawal's detailed description of the nitrile-based preforms and containers, and the processing to construct the latter out of the former, to apply identically to an embodiment substituting polypropylene for Agrawal's nitrile-based material. (See, Decl. of Knoll ¶12). Agrawal's disclosure is completely devoid of any information teaching how to manufacture a preform and container from polypropylene. (See, Decl. of Knoll ¶12). What one of ordinary skill in the art would understand from Agrawal is that because the characteristics of polypropylene differ significantly from those of nitrile-based materials, the dimensional parameters and stretch ratios of Agrawal's nitrile preforms and containers would not apply identically to polypropylene embodiments. (See, Decl. of Knoll ¶12). For example, polyacrylonitrile (Agrawal's preferred nitrile material) differs from polypropylene in at least the following ways:

PROPERTY, UNITS	POLYACRYLONITRILE	POLYPROPYLENE
Density, gram/cc	1.15 – 1.19	0.90
Melt Temperature, °C	250 - 320	162
Crystallization Temp., °C	95 - 100	140
Glass Transition Temp., °C	85 – 95 (dry)	- 3.2
H2O Absorption, %	1.0 – 1.5	0.03
Heat Capacity, J/mol/K @ 23°C	69	77
Thermal Decomposition T °C	250-320	> 400

Agrawal details nothing about modifications necessary to accommodate these differences in material properties to achieve the objectives of the invention. (See, Decl. of Knoll ¶12).

Nowhere does Agrawal state, or even suggest, that polypropylene may be substituted for the nitrile materials. (See, Decl. of Knoll ¶13) Nowhere does Agrawal state, or even suggest, that polypropylene may be substituted for the nitrile materials without any alteration to the configuration of the nitrile preform and/or container to accommodate the differences in the materials. (See, Decl. of Knoll ¶13) To do so would go beyond the scope of Agrawal's invention. (See, Decl. of Knoll ¶13).

One of ordinary skill in the art would not have considered it obvious to replace Agrawal's nitrile-based materials with polypropylene without modifying the physical characteristics of the preform and container, such as wall thicknesses and stretch ratios, to accommodate the differences between Agrawal's nitrile-based materials and polypropylene. (See, Decl. of Knoll ¶14).

4. If Obvious, Agrawal Should Have Been Used With Polypropylene By Now

Moreover, if employing Agrawal's invention with polypropylene preforms and containers were truly obvious to one of ordinary skill in the art, then the motivation cited by the Office in support of its rejection would certain have driven the artisan of ordinary skill to do so over the nearly 20 years between the issuance of Agrawal and the filing date of the instant application.

Twenty years, and yet the Office has produced no evidence of Agrawal's nitrile-based preforms and container being constructed from polypropylene.

5. Conclusion

Applicants respectfully assert that it would not have been obvious to use polypropylene to construct the nitrile-based preforms and containers of Agrawal and employ its processing parameters designed for those nitrile-based products on such polypropylene preforms and containers.

Applicants respectfully request the withdrawal of the outstanding rejections over Agrawal.

CONCLUSION

Applicants assert that this application is in condition for allowance. Early action to that end is requested.

A Declaration of Dr. Robert Knoll under 37 C.F.R. §1.132 is submitted herewith in support of this paper.

Respectfully submitted,

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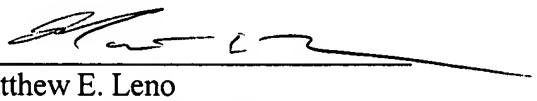

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